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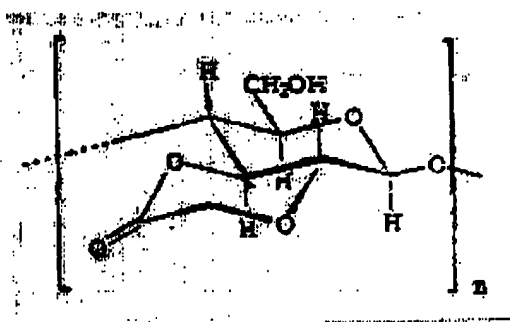
## AMENDMENTS

### To the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

### Listing of Claims:

1. (Withdrawn) A carboxymethyl cellulose compound according to the formula:



wherein "n" is an integer from 500 to 2000.

2. (Withdrawn) A carboxymethyl cellulose compound according to Claim 1 wherein "n" is an integer from 1000 to 15000.
3. (Currently Amended) A method for the synthesis of a lactone of polysaccharide carboxylic acids which comprises (i) providing the free acid form of the polysaccharide as a finely-powdered, anhydrous carboxylic acid with minimal sodium and potassium carboxylate content; (ii) lactonizing said polysaccharide by thermal dehydration ~~for a period greater than five hours~~ in an anhydrous non-nucleophilic solvent; and (iii) collecting the resulting lactone product, wherein said polysaccharide carboxylic acid is selected from the group consisting of carboxy- and carboxymethyl cellulose, carboxy- and carboxymethyl cyclodextrin, carboxy- and carboxymethyl starch, carboxy- and carboxymethyl chitosan, and pectin.

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4. (Canceled)

5. (Currently Amended) A method according to Claim 3 ~~which further comprises conducting said lactonization in a refluxing media wherein the solvent is~~ selected from the group consisting of xylene, toluene, diglyme, and acetonitrile.

6. (Currently Amended) A method according to Claim 5 wherein the polysaccharide carboxylic acid is carboxymethyl-cellulose and the solvent is diglyme, ~~lactonizing consists of:~~

- ~~(i) suspending the carboxymethyl cellulose in anhydrous diglyme;~~
- ~~(ii) heating the suspension to about 150°C for about 24 hours;~~
- ~~(iii) removing the diglyme solvent; and~~
- ~~(iv) collecting the lactone.~~

7. (Currently Amended) A method according to Claim 5 wherein the polysaccharide carboxylic acid is pectin acid and the solvent is toluene, ~~lactonizing consists of:~~

- ~~(v) (i) suspending the pectin in anhydrous toluene;~~
- ~~(vi) (ii) heating the suspension for about 24 hours;~~
- ~~(vii) (iii) removing the toluene solvent; and~~
- ~~(viii) (iv) collecting the lactone.~~

8. (Currently Amended) A method according to Claim 5 wherein the polysaccharide carboxylic acid is carboxymethyl-starch and the solvent is diglyme, ~~lactonizing consists of:~~

- ~~(i) converting the starch to the free acid;~~
- ~~(ii) suspending the free acid in anhydrous diglyme;~~
- ~~(iii) heating the suspension;~~
- ~~(iv) removing the diglyme solvent; and~~

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~~(v) —collecting the lactone.~~

9. (Previously Presented) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 3.
10. (Withdrawn) A method of forming a polysaccharide carboxylic acid lactone conjugate which comprises (i) ring-opening a polysaccharide carboxylic acid lactone selected from the group consisting of carboxymethyl cellulose, carboxymethyl alpha- and beta- dextran, carboxymethyl starch, chitosan, O.N-Carboxymethyl, O-carboxymethyl, N-carboxymethylchitosan, carboxy-starch, and pectin lactones; and (ii) coupling said lactone with a compound having a biological response within a targeted end-user.
11. (Withdrawn) A method according to Claim 10 wherein ring opening is accomplished with a nucleophilic compound.
12. (Withdrawn) A method for the synthesis of a therapeutic compound comprising the step of conjugating a therapeutic agent to a carboxymethyl polysaccharide utilizing a reactive lactone of said carboxymethyl polysaccharide.
13. (Withdrawn) A method according of Claim 12 wherein the carboxymethyl polysaccharide is carboxymethyl cellulose, and wherein the therapeutic agent is selected from the group consisting of cisplatin, ellipticinium, aminogluthethernide, mitoxantrone, finasteride, vitamin E, alpha-difluoromethylornithine, mitoguazone, and nucleophilic chemotherapeutic agents.
14. (Withdrawn) A method for the synthesis of a conjugated polymer comprising the step of conjugating an agent to a carboxymethyl polysaccharide utilizing a reactive lactone of said carboxymethyl polysaccharide, and wherein said agent is selected from the group consisting of

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an imaging diagnostic capable of binding radioactive metal ions for nuclear imaging or paramagnetic metal ions for magnetic resonance imaging, fragrances, flavorants, cis 3-hexen-1-ol, and property modifiers.

15. (Canceled)

16. (New) A polysaccharide carboxylic acid lactone product made according to a method for the synthesis of a lactone of polysaccharide carboxylic acids comprising:

- (i) providing the free acid form of the polysaccharide as a finely-powdered, anhydrous carboxylic acid with minimal sodium and potassium carboxylate content;
- (ii) lactonizing said polysaccharide by heating in an anhydrous non-nucleophilic solvent; and
- (iii) collecting the resulting lactone product,

wherein said polysaccharide carboxylic acid is selected from the group consisting of carboxy- and carboxymethyl cellulose, carboxy- and carboxymethyl cyclodextrin, carboxy- and carboxymethyl starch, carboxy- and carboxymethyl chitosan, and pectin, and wherein said polysaccharide carboxylic acid lactone is free of residual chemical activators and promoters.

17. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxymethyl cellulose.

18. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is pectin.

19. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxymethyl starch.

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20. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxymethyl cyclodextrin.
21. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxymethyl chitosan.
22. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxy starch.
23. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 3, wherein said polysaccharide carboxylic acid is selected from the group consisting of carboxy- and carboxymethyl cyclodextrin, carboxy- and carboxymethyl starch, carboxy- and carboxymethyl chitosan, and pectin.

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